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Abstract
Bench-to-Bedside Diagnosis of Invasive Pulmonary Aspergillosis

Invasive pulmonary aspergillosis (IPA) is a life-threatening lung disease of haematological malignancy and bone marrow transplant patients caused by the air-borne mould *Aspergillus*. Current diagnostic tests for the disease lack sensitivity or specificity, and culture of the fungus from invasive lung biopsy, considered the gold standard for IPA detection, is slow and often not possible in critically ill patients. While Computed Tomography (CT) is a non-invasive diagnostic procedure, it has limited clinical utility for IPA diagnosis, but is nevertheless used as a trigger for commencing antifungal treatment in a number of centres.

Innovative approaches to the diagnosis of IPA are needed to enable diagnostic-driven treatment with mould active drugs. In this talk, I will discuss the development of diagnostic technologies for IPA detection based on the *Aspergillus*-specific mouse monoclonal antibody JF5, including the CE-marked *Aspergillus* lateral-flow device (OLM Diagnostics), and CE-marked *Aspergillus*-ELISA (Euroimmun AG). In addition, I will describe the humanisation of mAb JF5 for PET/MR imaging of *Aspergillus* lung infections *in vivo*, and translation of the imaging technology to the clinical setting.

I will finish by describing the recent development of a mAb, PD7, specific to *A. fumigatus*, and its use to detect a novel protein biomarker of IPA in urine.

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